

Appl. No. : 10/608,233
Filed : June 30, 2003

AMENDMENTS TO THE CLAIMS

Please amend Claims 18, 56, 57, 60, 62-65 as indicated below. New Claims 67-79 are added.

1-17. (Canceled)

18. (Currently amended) A polarization maintaining air-clad fiber, comprising:
a core region;
a material cladding region surrounding said core;
an air-cladding substantially surrounding said first cladding region; and
a layer surrounding said air cladding.

where polarization maintaining operation of said fiber is obtained by the incorporation of stress producing regions that are fully disposed within and surrounded by
[[into]] said [[fiber]] material cladding region.

19. (Previously Presented) A polarization maintaining air-clad fiber as claimed in claim 18, wherein said fiber comprises additional cladding regions.

20-55. (Canceled)

56. (Currently amended) A polarization maintaining fiber, comprising:
a fiber core having a diameter > 15 μ m;
a first cladding surrounding said core; and further including stress-producing regions incorporated therein;

an air cladding ~~at least~~ substantially surrounding said first cladding; and
a third cladding surrounding said air cladding.

57. (Currently amended) A polarization maintaining optical fiber comprising:
a fiber core;
an inner cladding surrounding said core, said inner cladding having a cross-section
comprising an outer surface having at least three-fold symmetry;

Appl. No. : 10/608,233
Filed : June 30, 2003

a cladding region disposed about said core and about said inner cladding, said cladding region comprising a plurality of features disposed therein, said plurality of features forming an optical cladding for said core and said inner cladding; and

a plurality of stress producing regions that induce birefringence birefringence in said fiber thereby producing polarization maintaining operation.

58. (Previously presented) The optical fiber of Claim 57, wherein said plurality of features comprise a plurality of holes.

59. (Previously presented) The optical fiber of Claim 57, wherein said plurality of features comprise a plurality of air-holes.

60. (Currently amended) The optical fiber of Claim 57, wherein said stress producing regions are disposed substantially symmetrically about said core and said cladding region is disposed about said stress producing regions and said core.

61. (Previously presented) The optical fiber of Claim 57, wherein said plurality of stress producing regions comprise a pair of stress producing regions disposed on opposite sides of said core.

62. (Currently amended) A polarization maintaining optical fiber comprising:
a fiber core;
a single ring of a plurality of regions disposed about said core, said regions forming an optical cladding for said core; and

a plurality of stress producing regions that induce birefringence birefringence in said fiber thereby producing polarization maintaining operation.

63. (Currently amended) The optical fiber of Claim 62, wherein said plurality of features regions comprise a plurality of holes.

64. (Currently amended) The optical fiber of Claim 62, wherein said plurality of features-regions comprise a plurality of air-holes.

65. (Currently amended) The optical fiber of Claim 62, wherein said stress producing regions are disposed substantially symmetrically about said core and said cladding region is disposed about said stress producing regions and said core.

66. (Previously presented) The optical fiber of Claim 62, wherein said plurality of stress producing regions comprise a pair of stress producing regions disposed on opposite sides of said core.

67. (New) The polarization maintaining air-clad fiber of Claim 18, wherein the core region has a diameter $> 15\mu\text{m}$.

68. (New) The polarization maintaining air-clad fiber of Claim 18, wherein the material cladding region has a cross-section having an outer surface having at least three-fold symmetry.

69. (New) The polarization maintaining air-clad fiber of Claim 18, wherein said air-cladding comprises a single ring of air-holes.

70. (New) The polarization maintaining fiber of Claim 56, wherein the first cladding fully surrounds the stress-producing regions.

71. (New) The polarization maintaining fiber of Claim 56, wherein the first cladding has a cross-section having an outer surface having at least three-fold symmetry.

72. (New) The polarization maintaining fiber of Claim 56, wherein the air-cladding comprises a single ring of air holes.

73. (New) The polarization maintaining optical fiber of Claim 57, wherein the fiber core has a diameter $> 15\mu\text{m}$.

74. (New) The polarization maintaining optical fiber of Claim 57, wherein each of said plurality of stress producing regions has a cross-section having an outer surface, and wherein said outer surface of each of said stress-producing regions is disposed within said outer surface of said inner cladding.

Appl. No. : **10/608,233**
Filed : **June 30, 2003**

75. (New) The polarization maintaining optical fiber of Claim 57, wherein the cladding region comprises a single ring of said features.

76. (New) The polarization maintaining optical fiber of Claim 62, wherein the fiber core has a diameter $> 15\mu\text{m}$.

77. (New) The polarization maintaining optical fiber of Claim 62, wherein said plurality of stress producing regions are surrounded by an inner cladding that surrounds said core, and wherein said plurality of regions substantially surrounds said inner cladding.

78. (New) The polarization maintaining optical fiber of Claim 62, further comprising an inner cladding that surrounds said core, wherein said plurality of regions substantially surrounds said inner cladding, and wherein said inner cladding has a cross-section having an outer surface having at least three-fold symmetry.

79. (New) The polarization maintaining optical fiber of Claim 62, wherein said fiber core has a first refractive index and said regions in said single ring have a second refractive index, said first refractive index being higher than said second refractive index.